

# Mark Ian Cook, Ph.D.

## *Curriculum Vitae*

Everglades Division  
South Florida Water Management District  
3301 Gun Club Rd, P.O Box 24680  
West Palm Beach, FL 33416  
Phone: (561) 686 8800 ext. 4539  
email: mcook@sfwmd.gov

### **Research Interests**

I have broad interests in behavioral ecology and conservation biology, chiefly related to avian reproductive performance. I am particularly interested in the behavioral response of individuals to changing environmental conditions and the application of behavioral ecology to environmental problems. My current research examines the relationship between habitat quality and breeding success in wading birds and the consequences of non-native invasions in the Everglades marsh system. My recent post-doctoral research examined the early phases of reproduction in birds i.e. egg laying and incubation, focusing on how constraints operating in these phases influence hatching patterns and clutch size in birds.

### **Appointments**

2004-	Senior Environmental Scientist, Everglades Division, South Florida Water Management District, West Palm Beach, Florida
2003 - 2004	Postdoctoral Researcher, Department of Ecosystems Sciences, Policy and Management, University of California, Berkeley. Advisor: Prof. Louise Fortmann
2000 - 2003	Postdoctoral Researcher, Department of Ecosystems Sciences, Policy and Management, University of California, Berkeley. Advisor: Prof. Steven Beissinger

### **Education**

Ph.D. (2000)	Avian Ecology	Glasgow University, UK Dissertation title: Consequences of competitive asymmetry in Black Guillemot <i>Cephus grylle</i> broods. Advisor: Prof. Pat Monaghan
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M.Sc. (1995)	Advanced Ecology	University of Durham, UK Dissertation title: Effects of supplementary feeding on provisioning and growth rates of nestling Atlantic Puffins <i>Fratercula arctica</i> . Advisor: Dr. Keith Hamer
B.Sc. (Hons.) (1993)	Zoology/Marine Zoology	University of Wales, Bangor, UK Advisor: Prof. Norman Runham

## **Professional Experience**

Senior Environmental Scientist, Everglades Division, Marsh ecology group, South Florida Water Management District (2004 - present).

Design, direct and conduct research on effects of hydrologic properties and nutrient enrichment on marshland faunal communities, with particular emphasis on birds. Direct a small team of research associates and field technicians.

Other duties: contract management; bird surveys; advisor to upper management on wildlife issues; communicate Everglades wildlife issues with press and media.

Postdoctoral Research: University of California, Berkeley (2003 - 2004).

Research experience: Human foraging and tree use in Zimbabwe. Main duties were to provide statistical advice and to analyze human tree-use data using Information theoretical approaches to model development.

Postdoctoral Research: University of California, Berkeley (2000 - 2003).

Research Experience: Examined the role of environmental constraints (biotic and abiotic) on avian reproductive strategies using an altitudinal gradient in Puerto Rico. Initiated and developed experiments and collaborations to investigate effects of microbial infection and ambient temperatures on avian incubation patterns.

Also initiated a study to examine the potential consequences of invasive Africanized bee populations for cavity nesting endemic birds in Puerto Rico.

Supervisory Experience: Supervised full-time field and laboratory technicians plus two USDA Forest Service personnel for three six-month field seasons (2000-02).

Ph.D. Dissertation Research: Glasgow University, Scotland (1996-2000).

Research Experience: Studied breeding strategies of Black Guillemots on the Orkney Islands, northern Scotland. Focused primarily on causes and consequences of competitive asymmetry within broods, but also studied environmental factors affecting breeding success.

Supervisory Experience: Supervised one full-time field technician and three undergraduate students for each three-month field season (1996-98).

Other: Gained considerable logistical experience from organizing a large-scale, technology-based research project on a remote, uninhabited island.

Wildfowl Demographic Research: Wildfowl and Wetlands Trust, Scotland (1999).

Research Experience: Examined pre-migratory behavior and demographics of Brent Geese on over-wintering habitats in southern Scotland.

M.Sc. Dissertation Research: University of Durham, England (1995).

Research Experience: Examined the relationship between food supply and provisioning strategy in the Atlantic Puffin on the Isle of May, Scotland.

Biological Consultant: INCA, Northumberland, England (1995).

Research Experience: Observed Grey and Harbor Seal behavior in relation to a power-plant underwater fish-scarer.

Research Assistant: English Nature, Northumberland, England (1994).

Research Experience: Monitored the reproductive success of a population of the endangered Little Tern.

Volunteer Research Assistant: English Nature, Northumberland, England (1993).

Research Experience: Monitored Harbor and Grey seal behavior and conducted wading bird surveys.

Other Volunteer Experience: Surveyed and studied wetland habitats in England, Scotland, Mallorca, mainland Spain, Venezuela, Puerto Rico and California. Conducted general avian studies in Tanzania, Malawi, Zimbabwe, California and Puerto Rico, and seabird surveys in Scotland and California.

## **Publications**

### **Refereed contributions** (in reverse chronological order)

Sklar, F, Rutchey K, Hagerthy S, **Cook MI**, et al. (2006) Ecology of the Everglades Protection Area Pp. 6.1 – 6.43 *In* G. Redfield (ed.) South Florida Environmental Report. S. Florida Water Mgt. District, West Palm Beach, FL.

**Cook MI**, Beissinger SR, Toranzos G, Arendt WJ (2005). Effects of incubation on avian eggshell microbial processes: implications for maintaining egg viability prior to clutch completion. *Ecology Letters* 8: 532-537

Beissinger SR, **Cook MI**, Arendt WJ. (2005) The “shelf-life” of bird eggs: experimental analysis of egg viability using a tropical altitudinal gradient. *Ecology* 86: 2164-2175

**Cook MI**, Beissinger SR, Toranzos G, Rodriguez R, Arendt WJ (2005). Microbial infection affects egg viability and incubation behaviour in a tropical passerine. *Behavioral Ecology* 16: 30-36

Sklar, F, Rutchey K, Hagerthy S, **Cook MI**, et al. (2005) Ecology of the Everglades Protection Area Pp. 6.1 – 6.43 *In* G. Redfield (ed.) South Florida Environmental Report. S. Florida Water Mgt. District, West Palm Beach, FL.

**Cook MI** and Monaghan P (2004). Sex differences in embryo development period and effects on avian hatching patterns. *Behavioral Ecology* 15: 205-209

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- Cook MI**, Beissinger SR, Toranzos G, Rodriguez R, Arendt WJ (2003). Trans-shell infection by pathogenic microorganisms reduces the shelf-life of non-incubated birds' eggs: a constraint on the onset of incubation? *Proceedings of the Royal Society London B* 270: 2233-2240
- Cook MI**, Monaghan P, and Burns MD (2000). Effects of short-term hunger and competitive asymmetry on facultative aggression in nestling black guillemots *Cepphus grille*. *Behavioral Ecology* 11: 282-287.
- Cook MI**, Monaghan P, and Burns MD (1999). Sibling aggression in Black Guillemot nestlings *Cepphus grylle*. In: NJ Adams and RH Slotow (Eds) Proc. 22 Int. Ornithol. Congr. Durban. *Ostrich* 63:134
- Cook MI** and Hamer KC (1997). Effects of supplementary feeding on provisioning and growth rates of nestling Puffins *Fratercula arctica*: evidence for regulation of growth. *Journal of Avian Biology* 28: 56-62

#### **Manuscripts in review or near submission:**

- Cook MI and Monaghan P. Sex biased hatching sequence in relation to chick growth and survival. In review *Proceedings of the Royal Society London B*
- Cook MI, Arendt WJ, Beissinger SR, Giray T. Troubles among the birds and bees: Africanized bee populations compete for cavities with endemic Puerto Rican birds. In preparation
- Cook MI, Beissinger SR, Arendt WJ. Incubation strategies in relation to an altitudinal gradient in the Pearly-eyed Thrasher. In preparation

#### **Non-refereed publications**

- Cook MI** and Call EM (Eds) (2005) South Florida Wading Bird Report, Vol. 11
- Crozier GE and **Cook MI** (Eds) (2004) South Florida Wading Bird Report, Vol. 10
- Philips RA, **Cook MI**, Griffin LR (1999). Brent Goose Winter Report (1998-99), Wildfowl and Wetland Trust, Caerlaverock, UK

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#### **Selected Presentations**

- Lake Okeechobee public meeting (2005)
- Waterbird Society Meeting, Jekyll Island, GA (2005)
- 3<sup>rd</sup> North American Ornithological Conference, New Orleans (2002)
- Edward Grey Institute Ornithology Meeting, Oxford University (1998, 1999)
- International Ornithological Congress, Durban, South Africa (1998)
- ASAB European Conference on Behavioral Biology, Glasgow University (1997)
- British Ecological Society Winter meetings (1995 – 1997)
- Many departmental presentations at Glasgow University and UC Berkeley

## **Awards**

Most thought provoking talk, *Edward Grey Institute Ornithology Meeting*, Oxford University, UK (1998).  
Best student talk, University of Wales, Bangor, UK (1993)

## **Grants**

NERC travel grant (UK)	\$1,200	(1998)
Louise Hiom trust (UK)	\$600	(1996, 1997)
Durham University graduate grant (UK)	\$800	(1995)

## **Teaching Experience**

Doctoral candidate graduate committee member, Florida Atlantic University (2004 – present)

Masters candidate graduate committee member, University of Puerto Rico (2002 -2003)

University of California, Berkeley

Co-advised a graduate student at UC Berkeley (2003).

Glasgow University

Instructor for level 3 Biometry (1996-97), Level 1 Biology (1997-99), Level 3 Vertebrate Biology (1997-99), and Social Medicine (1998-99). Also supervised research projects for six undergraduate students.

## **Professional Committees**

Loxahatchee Impoundment Landscape Assessment science committee 2006 - present

South Florida Subteam of the Scientific Advisory team to the Conservation Society

Lake Apopka avian mortality working group 2005

Florida Snail Kite working group 2004

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## **Professional Memberships**

Society for Conservation Biology  
International Society for Behavioral Ecology  
American Ornithologist Union  
Cooper Ornithological Society  
Waterbird Society  
Florida Ornithological Society

### **Manuscript Reviews**

Journal of Animal Ecology  
Biology letters  
Behavioral Ecology  
Journal of Avian Biology,  
Proceedings of the Royal Society B

### **Science Based Media Interviews**

- Interviewed in 2005 by NPR, Miami Herald
- Interviewed in 2004 by NPR, ABC, Fox, MBC, Palm Beach Post
- Interviewed by “Scientist News” magazine: Science News (2003) 164 vol. 12
- Interviewed by “New Scientist” magazine: New Scientist (2003) 179: p. 20
- Interviewed for the television documentary “Wings” (Channel 4, UK, 1997)

### **IT Skills**

Platforms: UNIX, PC. Word processing & presentation packages: Word, Wordperfect, MacWrite, Endnote, Powerpoint. Data analysis packages: Systat, SPSS (Unix), SPSSPC, Minitab, Access, Excel. Graphical packages: Cricket Graph, Sigma Plot, Adobe Photoshop. Web Page Design: Dreamweaver, Netscape Composer. Some experience with GIS (ARC-INFO). Microbial identification: Microlog. Climate data loggers: BoxCar Pro.

### **Field and Laboratory Skills**

#### **Capture and handling of birds**

- Ten year’s of field experience studying and handling wild birds
- Capture methods include mist-netting, hoop-netting, cannon-netting and dip-netting from boats
- Adept in identifying North American and European birds

#### **Field methods performed regularly**

- Measuring and banding adult birds and chicks
- Egg biometrics and egg video-candling
- Blood and feather sampling for DNA fingerprinting and microsatellite analyses

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- Behavioral observations (extensive) include: video sampling of sibling aggression, adult foraging, provisioning and kleptoparasitism; incubation behavior using thermistors, data loggers and video
- Radio telemetry – tag application and tracking

- Ground and boat based count/census work
- Fieldwork logistics – organization of equipment and transport for field seasons on remote, uninhabited islands and Neotropical rainforests
- Also familiar with small mammal trapping and fish sampling by electro-fishing, fyke nets, throw traps and minnow traps

#### Laboratory skills

- PCR based sex determination using blood/feathers
- Culturing and identification of microorganisms (aerobic bacteria and fungi)
- Developed a method to analyze the microbiota of egg contents

#### Other skills

First aid (Glasgow University), British Sub Aqua Club Sport Diver, Radio communication, Boat handling and maintenance, clean Florida driving license, working knowledge of Spanish.

#### References

Professor Steven Beissinger  
E.S.P.M., Ecosystem Sciences Division, 151 Hilgard Hall #3110,  
University of California, Berkeley, CA 94720 -3110  
Tel: (510) 643 3038                      Email: [beis@nature.berkeley.edu](mailto:beis@nature.berkeley.edu)

Professor Pat Monaghan  
Dept. Environmental & Evolutionary Biology  
Graham Kerr Building, Glasgow University, Glasgow G12 8QQ, UK  
Tel: (+44) 141 330 5968                      Email: [gbza30@udcf.gla.ac.uk](mailto:gbza30@udcf.gla.ac.uk)

Dr. Joe Wunderle  
International Institute of Tropical Forestry, USDA Forest Service,  
Palmer, PR 00921  
Tel: (787) 889 7485                      Email: [Wunderle@coqui.net](mailto:Wunderle@coqui.net)